

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference H0498.70211	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2004/043585	International filing date (day/month/year) 29/12/2004	(Earliest) Priority Date (day/month/year) 31/12/2003
Applicant PRESIDENT AND FELLOWS OF HARVARD COLLEGE		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☒ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

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Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

An assay method is described, which comprises the steps of immobilizing a binding partner (e.g., an antigen or antibody) for an analyte to be detected (e.g., an antibody or antigen) on a portion (140) of a surface (130) of a microfluidic chamber (120,122,124); passing a fluid sample over the surface and allowing the analyte to bind to the binding partner; allowing a metal colloid, e.g., a gold-conjugated antibody, to associate with the bound analyte; flowing a metal solution, e.g., a silver solution, over the surface such as to form an opaque metallic layer; and detecting the presence of said metallic layer, e.g., by visual inspection or by measuring light transmission through the layer, conductivity or resistance of the layer, or metal concentration in the metal solution after flowing the metal solution over the surface.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01N21/53 B01L3/00 G01N33/58

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01N B01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 146 589 A (CHANDLER ET AL) 14 November 2000 (2000-11-14)	26-31, 34-36, 43-47, 51, 54, 55
Y	the whole document	1-25, 32, 33, 37-42, 48-50, 52, 53, 56-71
Y	WO 91/01003 A (SECRETARY OF STATE FOR HEALTH IN HER BRITANNIC MAJ) 24 January 1991 (1991-01-24) cited in the application the whole document	1-71

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

25 April 2005

Date of mailing of the international search report

06/05/2005

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 333 200 B1 (KALER ERIC W ET AL) 25 December 2001 (2001-12-25) the whole document -----	1-71
Y	EP 0 643 307 A (CENTRO DE INGENIERIA GENETICA Y BIOTECNOLOGIA) 15 March 1995 (1995-03-15) page 3, lines 5-49 -----	1-71
Y	SIA S K AND WHITESIDES G M: "Microfluidic devices fabricated in poly(dimethylsiloxane) for biological studies" ELECTROPHORESIS, vol. 24, November 2003 (2003-11), pages 3563-3576, XP002325869 page 3568 - page 3569 -----	1-71
P,X	SIA S K ET AL: "An Integrated Approach to a Portable and Low-Cost Immunoassay for Resource-Poor Settings" ANGEW. CHEM. INT. ED., vol. 43, 16 January 2004 (2004-01-16), pages 498-502, XP001206245 the whole document -----	1-71

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Information on patent family members

International Application No

PCT/US2004/043585

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6146589	A	14-11-2000	AU 701018 B2	21-01-1999
			AU 4546396 A	21-08-1996
			CA 2211383 A1	08-08-1996
			CN 1176698 A	18-03-1998
			DE 69608880 D1	20-07-2000
			DE 69608880 T2	07-12-2000
			EP 0808457 A1	26-11-1997
			WO 9624060 A1	08-08-1996
			IL 117021 A	31-12-1999
			JP 10513263 T	15-12-1998
			ZA 9600802 A	12-08-1996

WO 9101003	A	24-01-1991	AT 135466 T	15-03-1996
			AU 5948090 A	06-02-1991
			DE 69025940 D1	18-04-1996
			DE 69025940 T2	17-10-1996
			EP 0481020 A1	22-04-1992
			WO 9101003 A1	24-01-1991

US 6333200	B1	25-12-2001	NONE	

EP 0643307	A	15-03-1995	CA 2105515 A1	04-03-1995
			JP 7120470 A	12-05-1995
			EP 0643307 A1	15-03-1995
